EHS-Net:

What + Why = Outbreak Prevention

Forty-Third Navy Occupational Health
and Preventative Medicine Workshop
Virginia Beach, VA
23 MAR 2004

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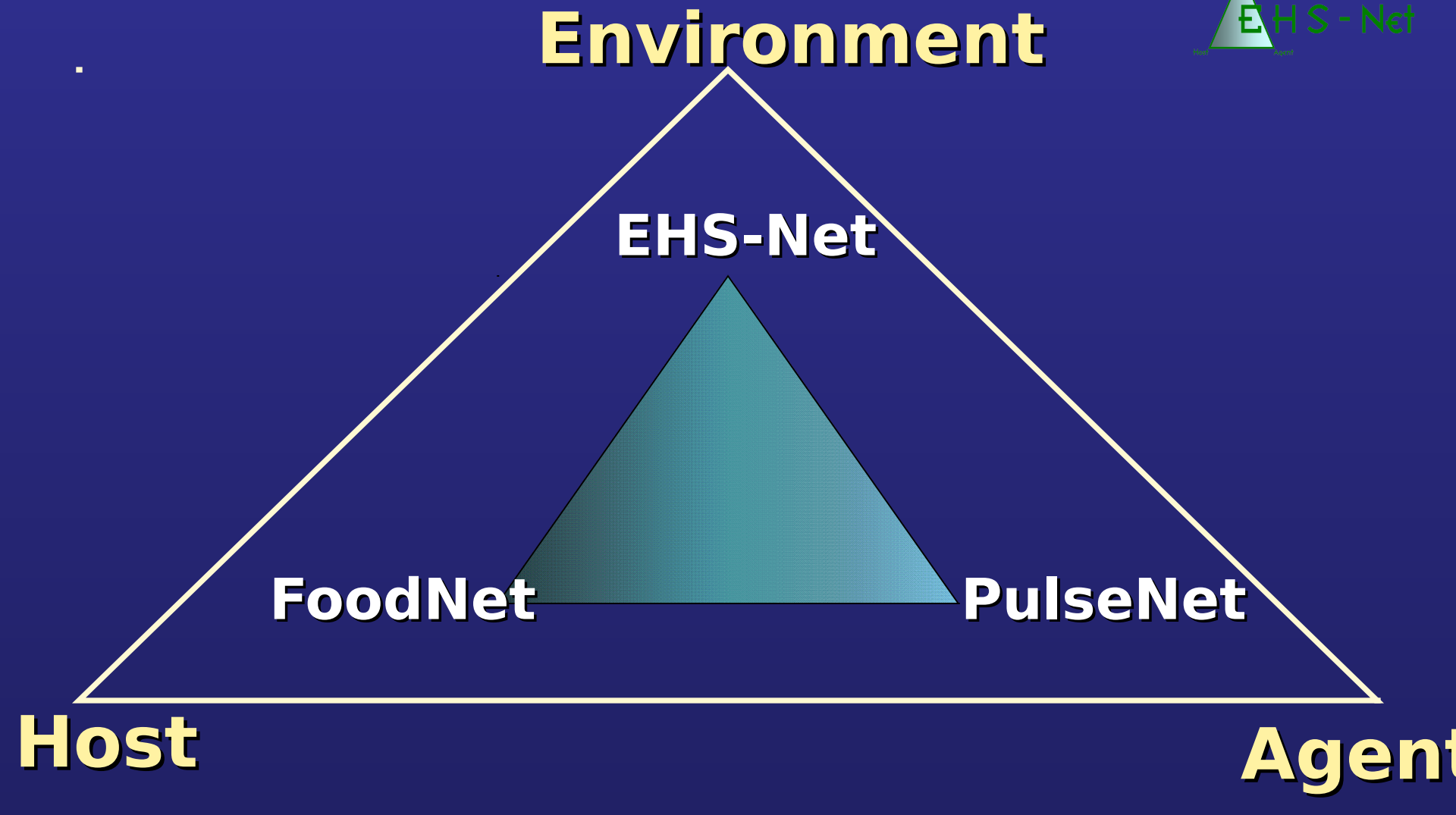
National Center for Environmental Health
Division of Emergency and Environmental Health Services
Environmental Health Services Branch


Environment
EHS-Net
FoodNet
PulseNet
Host
Agent

EHS-Net Background

- 2000 - 12,631 Lab-confirmed Cases Foodborne illness

- Estimated 76 million food related illnesses per year

- 1998-99 FoodNet population survey reported
  - 83% eat outside the home at least once per week

- FoodNet case-control studies suggest eating specific foods outside the home is associated with an increased risk for food related illness

EHS-Net Purpose

- To better understand the environmental factors and underlying causes of foodborne illness and prevent such illness from occurring in the future

- To evaluate the effectiveness of existing foodborne illness interventions and provide insight on new methods of intervening to state and local food protection programs

Three elements of EHS-Net

- Use a systems-based approach to identify contri
  factors of foodborne illness and their environme
  antecedents to foodborne illness

- Strengthen the relationships between Epidemiol
  Environmental Health, and Food Protection Prog

- Provide training opportunities for Environmental
  Health Specialists

The Systems Approach

EHS-Net

Outbreak

Prevention Points within the Syste

Process
Handling step
Cooking temps

Economics
Wages & Benefits
Equipment Costs

Environmental Antecedents

Equipment
Sink conditions
Cooler Temps

People
Mgmt policy
Personal hygiene

Increasing Numbers & Severity of Illness

Outbreak

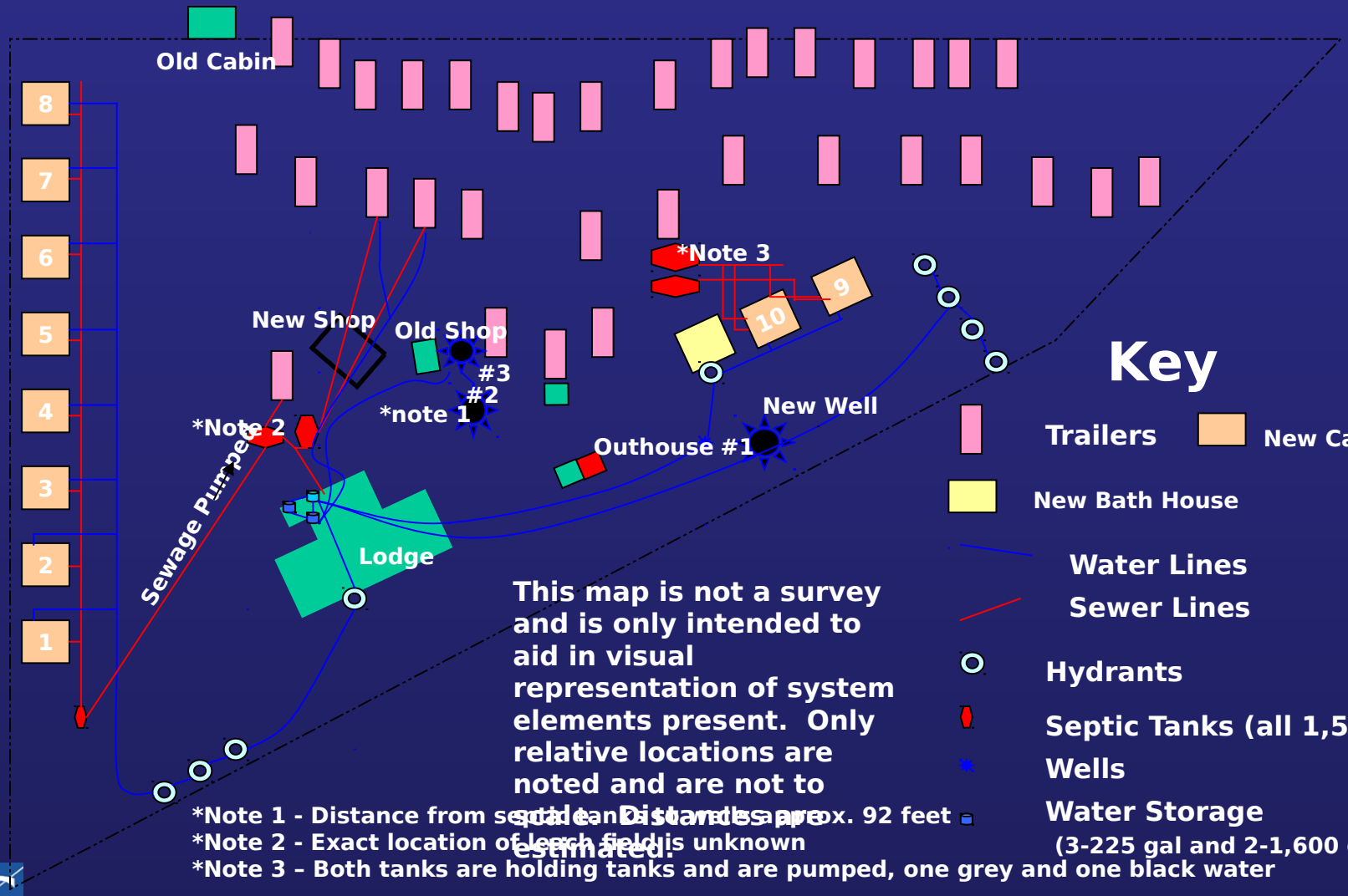
CDC

SAFER • HEALTHIER • PEOPLE ™

Why Use Systems Approach?

To prevent recurring outbreaks

Systems Approach Investigation – Norovirus at Snowmobile Lodge



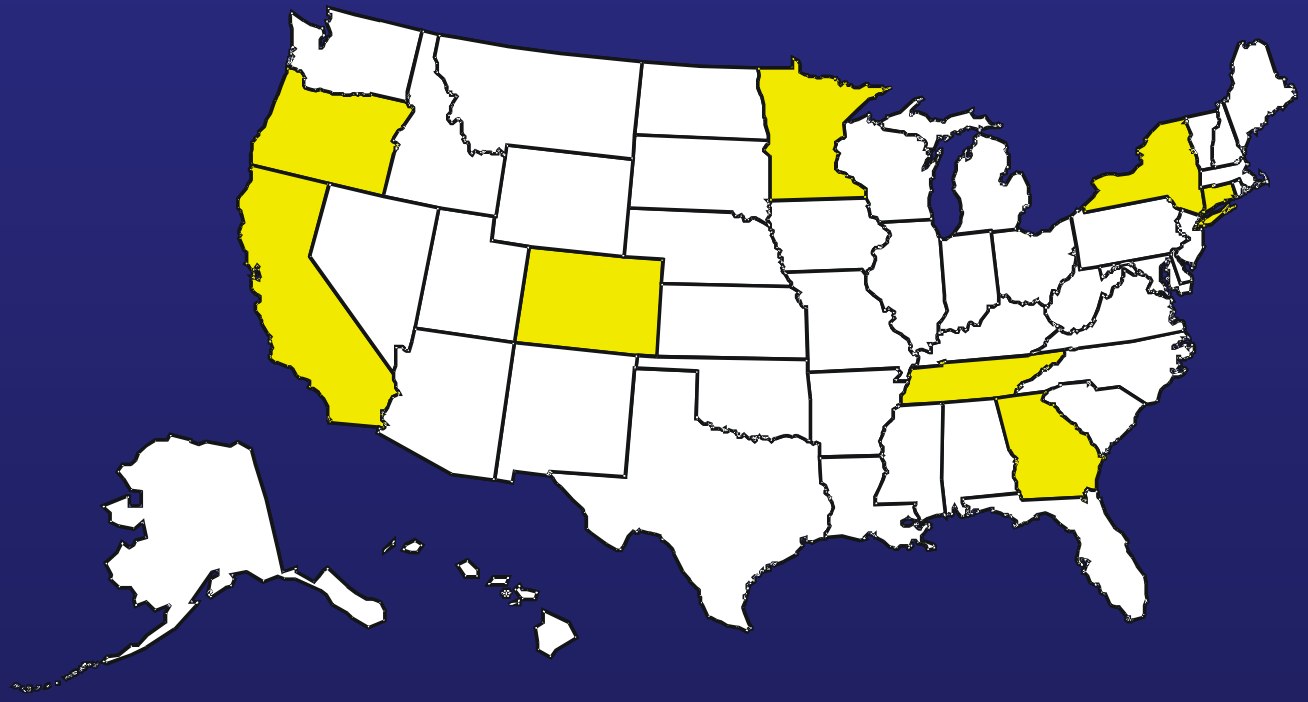
SAFER • HEALTHIER • PEOPLE™

EHS-Net Projects

- Food Service Establishment Evaluation
- Assessment of Knowledge, Attitudes and Perceptions
- EHS-Net Site Characteristics
- Special Projects
- Train the Trainer Program

Methodology

- 8 states enrolled in EHS-Net
  - CA, CO, CT, GA, MN, NY, OR, TN



Methodology

Restaurant

- An establishment that prepares and serves food to customers.

- Restaurants do not include institutions, food carts, mobile food units, temporary food stands, and restaurants in supermarkets.

Establishment Evaluations

- **Non-outbreak Evaluation**
  - No outbreak reported in 3 years
  - No food related complaint reported in 12 months
  - Min. of 3 establishments per month (>50 /yr/site)
  - Establishment selection state

- **Outbreak Evaluation**
  - Evaluate as many food related outbreaks in catchment area where food is eaten outside the home as feasible

Establishment Types

- **Prep Service (n~48)**
  - All food items prepared and served without a kill step in the process
- **Cook Service (n~96)**
  - At least one food item prepared for same day service and involves a kill step
  - The menu may include Prep Service items
- **Complex Meal Service (n~256)**
  - At least one food item requiring more than a kill step and includes some combination of hot holding, cold holding, cooling, re-heating, etc.
  - The menu may include Prep or Cook Service items

Data collection instruments

- Data collected by
  - Interview
  - Observation (Food Flow)
- Information assessed
  - Establishment demograph
  - Establishment policy
  - Operational procedures
  - Food handling practices and behaviors

Electronic Database

- Web-based data entry system
- All 3 parts of evaluations are entered into this database
- Data (without identifiers) submitted to CDC for analysis
- States will have access to the data they enter

How information will be utilized

- Investigate the underlying causes or antecedents
  that may contribute to foodborne illness.

- Provide information on the quantity and magnitude ood handling pr

How information will be utilized

- Provide insight on potential food preparation pr
associated with FoodNet illness data

- Compare establishment practices and adherenc
state and local food program policy

- Compare Food Flow method of
observing food safety concerns t
other inspections methods

Establishment Section (Part 1)

Interview with the manager to discuss policies and procedures in the establishment

- Read the questions as they are written
- After completing the questions
  - Review the menu
  - Discuss what is being prepared at the moment
  - Select a food item to observe
  - Discuss the food preparation process with the manager

Establishment Section Data Collected

- Description of the restaurant (fast food, fine dining, etc.)
- Certification of the mangers/food workers
- Languages spoken by managers/food workers
- Sick leave policies
- Cleaning policies
- Use of thermometers/thermocouples
- Procedures for dealing with ill employees
- Use of HACCP principles

Food Flow Section (Part 2)

Observations of the food preparation process

- Observations are preferable whenever possible
- If observation not possible, ask questions to gather additional information
- Sketch food flow on a blank piece of paper
- Refer to food flow tool to make sure you have gathered all necessary information

Food Flow
Steps in a Food Flow

- Receiving of ingredients
- Storage
- Preparation
- Cooking/Heating
- Cooling
- Holding (Hot/Cold
- Freezing
- Re-heating
- Serving

Food Flow
Data Collected

Hand Washing

- Did hand washing take place?
- How far is the hand washing sink from the work area?
- Are there physical barriers that prevent access to the sink?

Hand Contact

- What type of hand contact took place?
  - Bare hand contact
  - Glove-hand contact
  - Both bare and glove-hand contact
  - Neither

Food Flow (continued)
Data Collected

- **Temperature**
  - What is the temperature in the storage cooler?
  - What is the temperature of the food item?
  - Did an employee measure the temperature?
  - Did the employee record the temperature?

- **Cross Contamination**
  - Did you observe potential for cross contamination?
  - Were utensils/equipment clean and sanitized before use?

Food Flow (continued)
Data Collected

- **Equipment**
  - Is the capacity of equipment adequate for the quantity of food being cooked/held?
  - Is equipment functioning properly?
  - Does equipment reach and maintain appropriate temperatures?

Environmental Section (Part 3)

- **Observations of environmental factors**
  - **Answers are based on observations, NOT policies**
    - **When observations are not possible, answers can be obtained through interview**
  - **Answer questions based on ALL observations**
    - **Scenario: There are three sinks in the work area; two have warm water, one does not.**
    - **Question: Was warm water available at the sink?**
    - **Answer: No (because one sink didn't have warm water)**

Environmental Section
Data Collected

- **Worker Health**
  - Were workers ill?
  - Did workers have cuts or open wounds?
- **Hand Washing**
  - Was there hot water and soap available at the sinks?
  - Were paper towels or hot air dryers available?
- **Hand Contact**
  - Were hands washed between handling raw and RTE food?
  - Were gloves/utensils used when possible?
  - Were hands washed before putting on gloves?

Environmental Section (continued)
Data Collected

- **Food Contact Surfaces**
  - Are food contact surfaces washed, rinsed, and sanitized?
  - Is a dishwasher or three-compartment sink available?
- **Cold Holding**
  - Is the item date marked for use?
  - Is the temperature in the coolers below 41ºF or less?
  - Are records of these temperatures maintained?
- **Cross Contamination**
  - Are wiping clothes used to clean more than one work area?
  - Are wiping clothes sanitized between uses?
  - Did potential cross contamination occur during cooking or storage?

EHS-Net Special Studies

- Egg Handling Study
- Ground Beef Study
- FoodNet Population Survey
- Food Manager & Worker Focus Group Study
- Environmental Health Specialist Focus Group Study
- Personal Hygiene Study

Acknowledgements

CDC

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States

- California
- Colorado
- Connecticut
- Georgia
- Minnesota
- New York
- Oregon
- Tennessee

Partnerships

- FoodNet
- FDA

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